

What is claimed is:

1. A coated substrate, comprising: a substrate coil, and a coating composition applied to at least one major surface of the substrate coil,

5 wherein the coating composition comprises a binder comprising a polyester resin that is formed using at least one aromatic dicarboxylic acid, at least one symmetric diol in an amount greater than 50 weight percent based on the total weight of polyols and at least one asymmetric diol in an amount greater than 20 weight percent based on the total weight of polyols, wherein the polyester resin has a glass transition temperature of at least about 35 °C; and

10 wherein the flexibility of the coated substrate is at least 1T with no tape off.

2. The coated substrate of claim 1, wherein the coating composition further comprises an adjuvant selected from the group consisting of: pigment, flow modifiers, viscosity modifiers, or combinations thereof.

3. The coated substrate of claim 1, wherein the aromatic dicarboxylic acid comprises isophthalic acid.

20 4. The coated substrate of claim 1, wherein the aromatic dicarboxylic acid component is greater than about 85 weight percent based on the total weight of acid.

5. The coated substrate of claim 1, wherein the polyester resin comprises between about 50 and 75 weight percent isophthalic acid based on the total weight of resin.

25 6. The coated substrate of claim 1, wherein the symmetric diol amount is greater than 60 weight percent based on the total weight of polyols and the asymmetric diol amount is greater than 25 weight percent based on the total weight of polyols.

7. The coated substrate of claim 1, wherein the symmetric diol amount is greater than 65 weight percent based on the total weight of polyols and the asymmetric diol amount is greater than 30 weight percent based on the total weight of polyols.

8. The coated substrate of claim 1, wherein the symmetric diol comprises ethylene glycol, diethylene glycol, triethylene glycol, dipropylene glycol, 1,3-propanediol, neopentyl glycol, cyclohexane dimethanol, hydroxypivalyl hydroxypivalate, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol, or combination thereof.

9. The coated substrate of claim 1, wherein the symmetric diol includes both 1,3-propanediol and neopentyl glycol.

10. The coated substrate of claim 1, wherein the asymmetric diol comprises 1,2-propylene glycol, 2-methyl-1,3-propanediol, 2-butyl-2ethyl-1,3-propanediol, 1,2-butanediol, 1,3-butanediol, 1,2-pentanediol, 1,3-pentanediol, 1,4-pentanediol, 2,2-dimethyl-1,3-hexanediol, 2-methyl-2,4-pentanediol, 2,2,4-trimethyl 1-3-pentanediol, or combination thereof.

11. The coated substrate of claim 1, wherein the asymmetric diol comprises 2-methyl-1,3-propanediol.

12. The coated substrate of claim 1, wherein the polyester resin comprises between about 20 and 45 weight percent 1,3-propanediol, between about 15 and 40 weight percent 2-methyl-1,3-propanediol, and between about 25 and 50 weight percent neopentyl glycol based on the total weight of polyols.

13. The coated substrate of claim 1, wherein the binder further comprises a crosslinking agent.

14. The coated substrate of claim 13, wherein the crosslinking agent comprises a melamine formaldehyde resin.
- 5 15. The coated substrate of claim 1, wherein the glass transition temperature of the polyester resin is at least about 40 °C.
16. The coated substrate of claim 1, wherein the number average molecular weight of the polyester resin is between about 2,500 and 5,000.
- 10 17. The coated substrate of claim 1, wherein the binder comprises a blend of an aromatic solvent and propylene glycol monomethyl ether acetate.
18. The coated substrate of claim 1, wherein the hydroxyl number of the polyester resin is between about 20 and 50.
- 15 19. The coated substrate of claim 1, wherein the coating has a flexibility of 0T with no tape off, and a hardness of at least H.
- 20 20. The coated substrate of claim 1, wherein the coating composition when formulated to an initial white color has a Delta L durability of less than about 3 when tested as described herein.

21. A method of coating and fabricating a coil, comprising:

providing a coating composition, wherein the coating composition comprises a binder comprising a polyester resin that is formed using at least one aromatic dicarboxylic acid, at least one symmetric diol in an amount greater than 50 weight percent based on the total weight of polyols and at least one asymmetric diol in an amount greater than 20 weight percent based on the total weight of polyols, and optionally a crosslinker;

applying the coating composition onto at least one major surface of a substrate coil; and

hardening the coating composition.

22. The method of claim 21, further comprising forming the coated substrate coil into bent parts, wherein the hardened coating has a flexibility of at least 1T with no tape off, and a hardness of at least H.

23. A coating composition, comprising:

a binder, wherein the binder comprises a polyester resin that is formed using at least one aromatic dicarboxylic acid, at least one symmetric diol in an amount greater than 50 weight percent based on the total weight of polyols and at least one asymmetric diol in an amount greater than 20 weight percent based on the total weight of polyols, and optionally a crosslinker, wherein the coating composition is storage stable and has a glass transition temperature of at least about 35 °C.